

Engineered Bamboo Ceiling Project

# Chatswood Chase

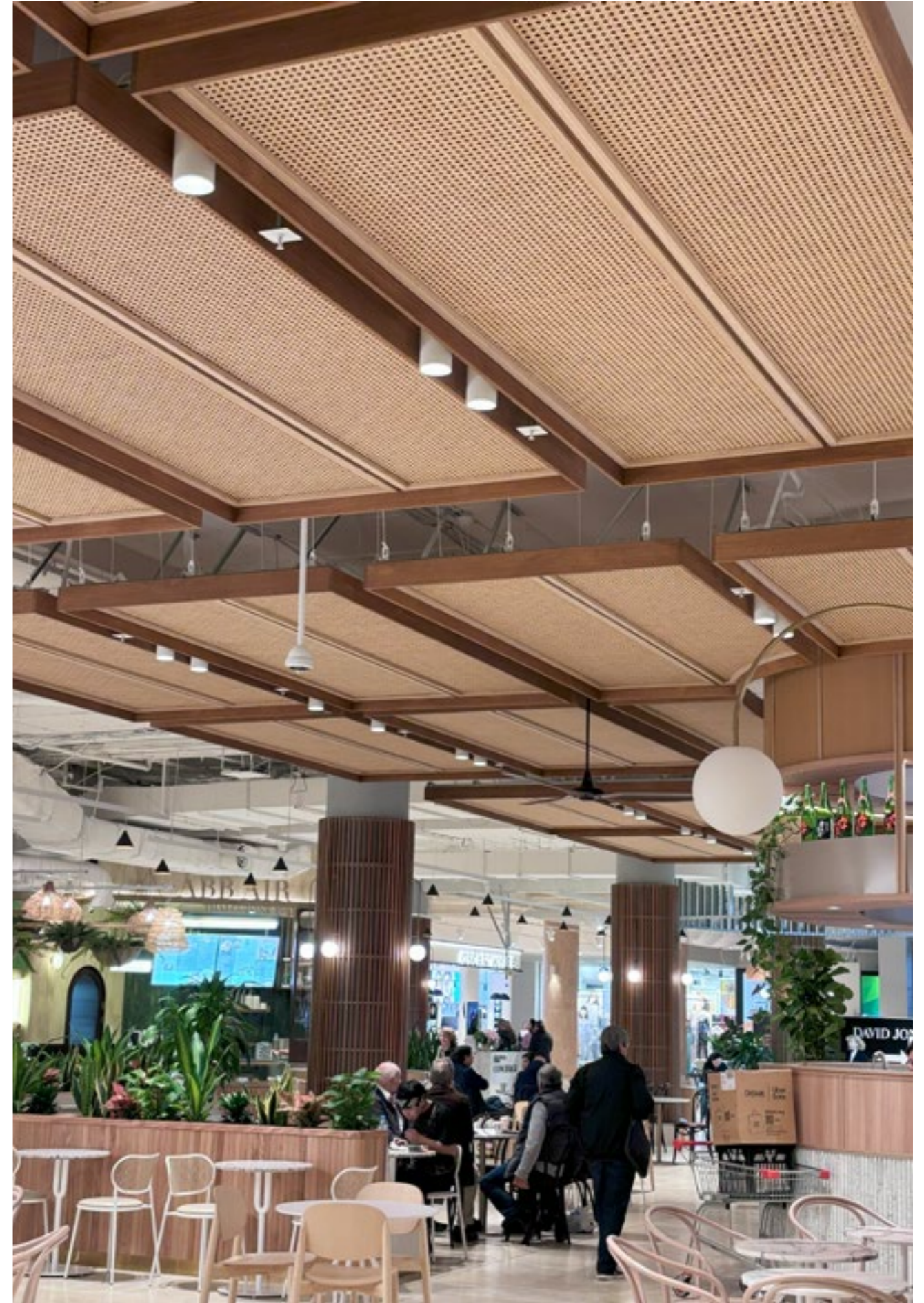
Food Hall Refurbishment

Vicinity Centres | client

MAKE Architects | architect

Mettle | construction manager

house of  
bamboo  
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## Introduction

The project at the Chatswood Chase Food Court, Sydney involved the installation of six feature ceiling screens measuring approx 7.9m x 7.9m overall, with each screen composed of six or eight smaller modular and bespoke panels at 3.7m x 1.7m . The completed screens utilised engineered bamboo sections and were enhanced with rattan compact weave inserts (Ref. CW-168-L).

The screens incorporated elegant ellipse cutouts to dramatically wrap around the top edges of the new boutique Chatswood Chase kiosks in the newly refurbished food hall.

# Technical Specifications



Rattan Weave

310 linear metres of 910mm wide rattan, Ref: CW-168L

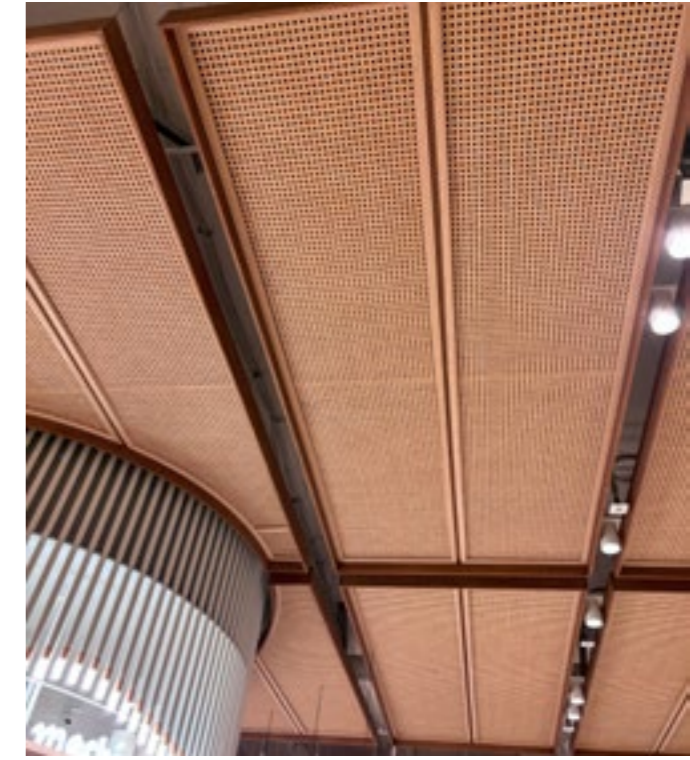


Bamboo Frames

Outer frames: 140mm x 20mm, totaling 497 linear metres.

Central bars: 40mm x 25mm, totaling 776 linear metres.

Inner frames and extra stiffeners: 35mm x 25mm, totaling 218 linear metres.



Timber Backing

10mm backing board (Hazelnut finish) totaling area of 282m<sup>2</sup>.



# Technical Specifications



Sample created for Architects review



## Finishes

57% of the project (the engineered bamboo perimeter frames) were finished in 2 layers of Hazelnut WOCA oil with the remaining 47% of engineered bamboo panel elements finished as raw. (All parts were mould resistance treated.)

## Rating Tools

Green Star – AU- GBCA  
IS Rating – ISCA  
USGBC LEED V4.0 & v4.1 Rating Tool Credit  
WELL Features - IWBI

## Fire Rating Level

Class 3 (refer National Construction Code)

Global GreenTag Certified  
-Level A

Global GreenTag  
HealthRate - Platinum

FSC Certified

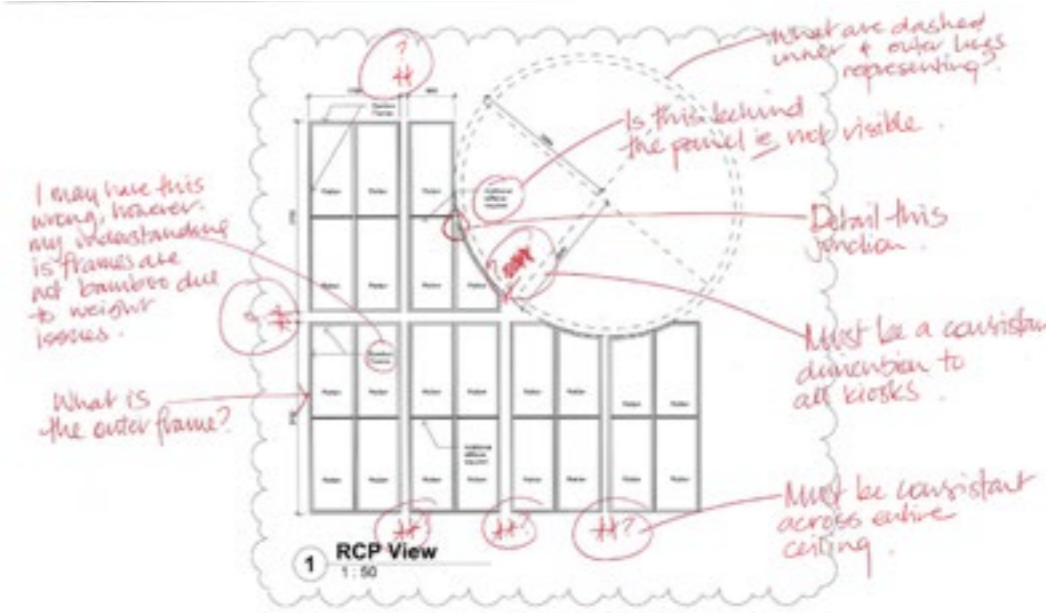
# Design and Manufacturing Challenges

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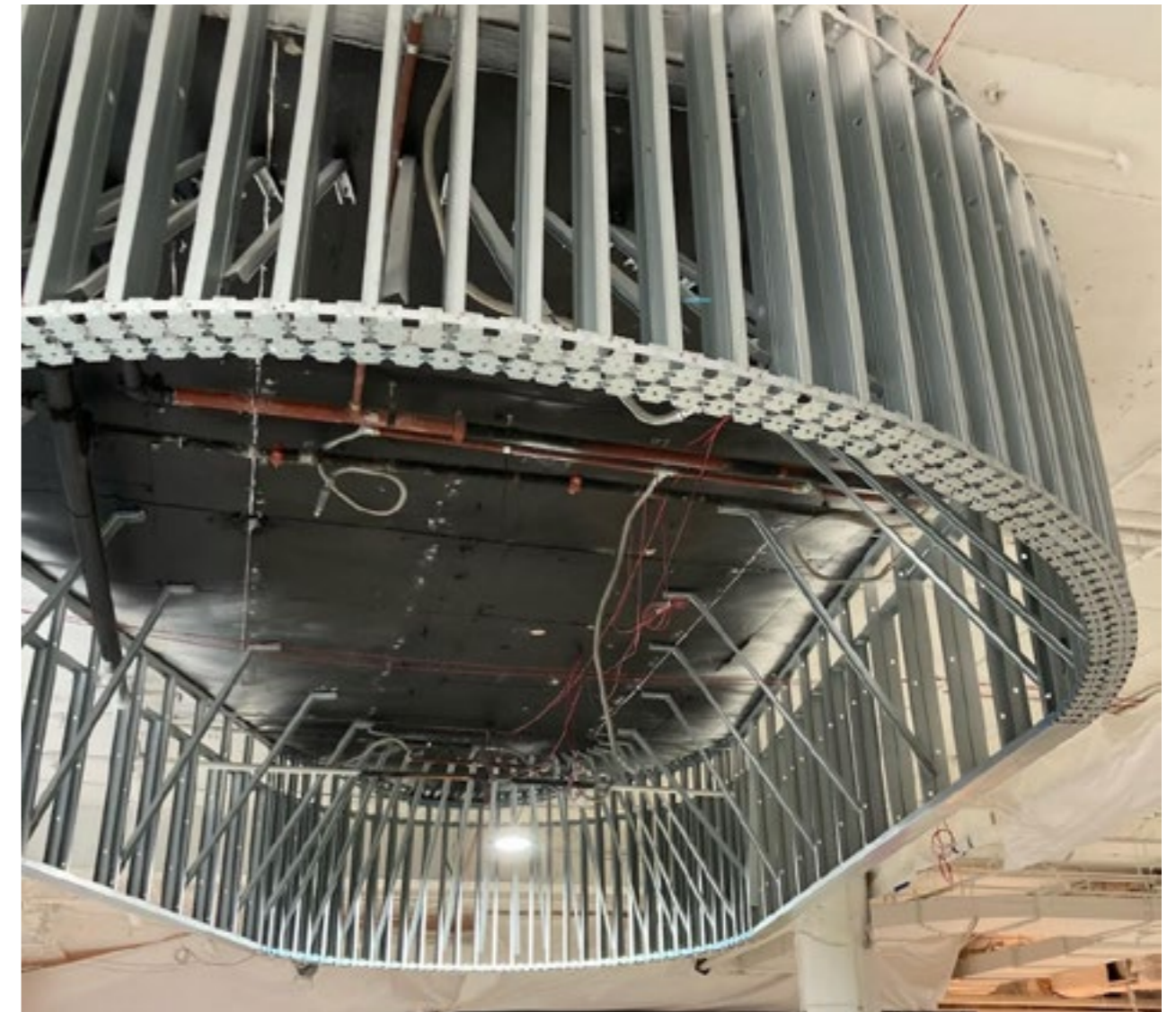
The ceiling designs presented a complex geometrical challenge due to their need to accommodate elliptical cutouts that wrapped around food kiosks. This required precise offsetting from the kiosks by 100mm.

# Design and Manufacturing Challenges



Unlike a standard oval, ellipses are geometrically complex and require intricate mathematical calculations to achieve 100% accuracy of the forms during fabrication. Production drawings required special attention to achieve a perfect and consistent 150mm offset from the finished surface of the elliptical 'Kiosk hoods.'

Client coordination process was detailed and many project benefits were identified through collaboration with METTLE (Project Manager,) their client and the wider design team...





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# Innovations and Solutions

## Weight Reduction:

Originally, the total projected weight of the ceiling structures was 2522 kg. Through a collaborative redesign effort with Mettle, the project team was able to reduce the weight to 1994 kg, achieving a substantial reduction of 528 kg while maintaining structural integrity.

## Manufacturing Technique:

The team explored several methods to address the unique elliptical design before settling on an optimal approach that ensured both aesthetic appeal accuracy and production efficiency.



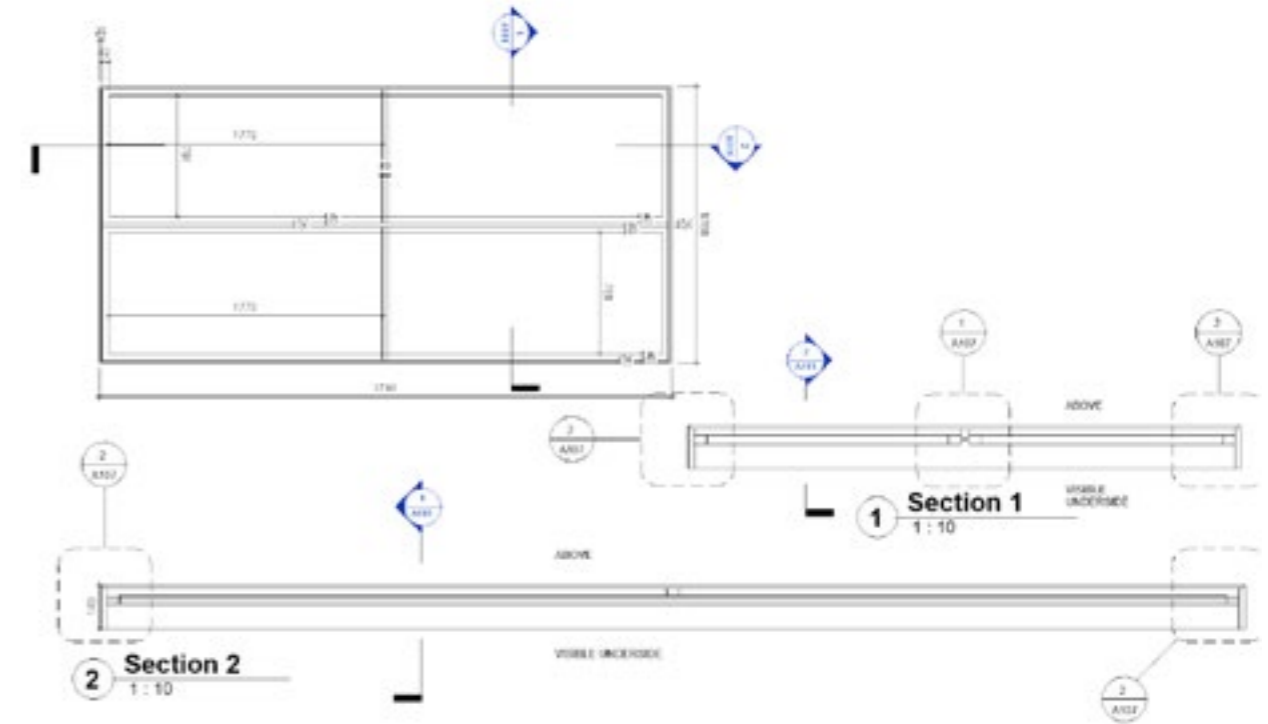
# Innovations and Solutions

## Manufacturing & Production Software:

The project utilised 3 dimensional BIM Software to model the complex geometry to ensure an exact match with MAKE Architects general arrangement designs and reflected ceiling plans.

## Additional screen Stability and Rigidity:

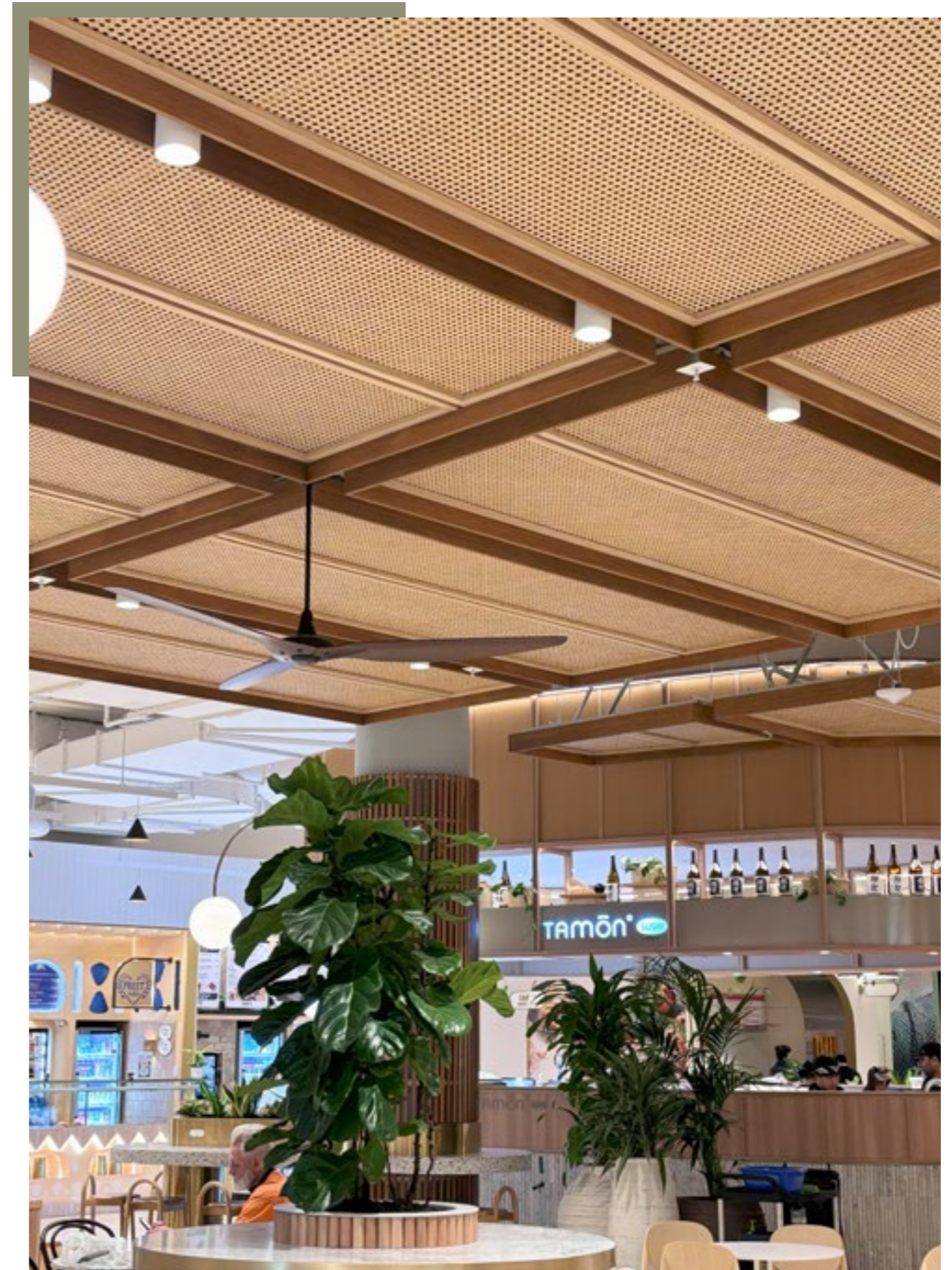
Additional panel struts were introduced to ensure screen stability without increasing the overall panel weight.



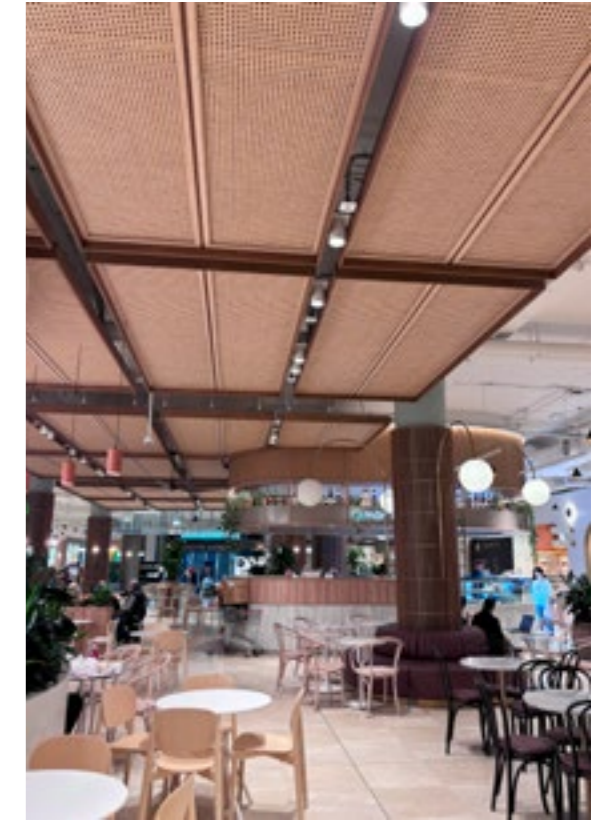
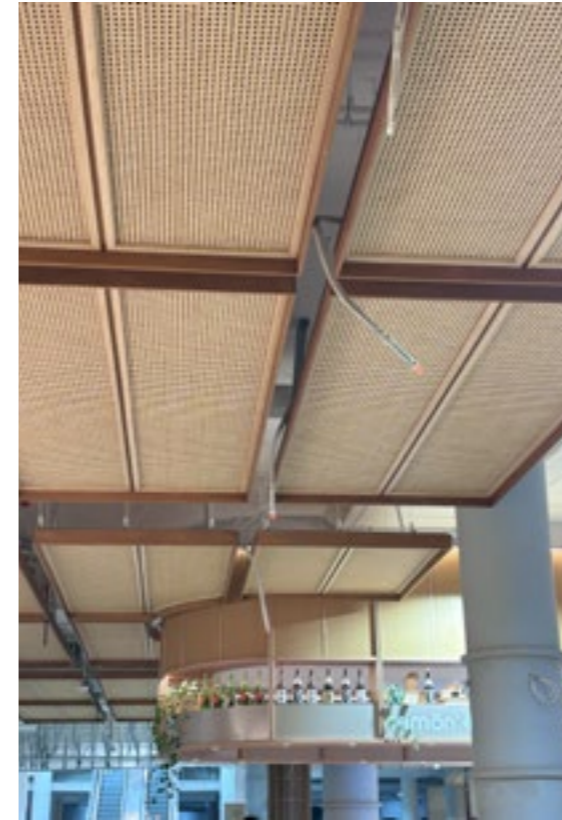
## Project Impact

This installation not only serves as an architectural focal point but also integrates essential services such as lighting and mechanical systems seamlessly with the physical structure.

The use of sustainable materials like bamboo and rattan not only aligns with Vicinity Centres environmental goals but also showcases the potential of these materials in complex, high-end commercial settings.



## Conclusion



The Chatswood Chase ceiling project exemplifies House of Bamboo's expertise in merging sustainability with innovative design solutions.

By overcoming significant engineering challenges, the team delivered a product that is both visually striking and environmentally responsible, setting a new standard for future projects in the industry.



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## OFFICE & SHOWROOM NSW



13 Erith Street, Botany NSW 2019

## SHOWROOM QLD



66 Merivale Street, South Brisbane QLD 4101

## CONTACT



For General Enquiries  
[info@houseofbamboo.com.au](mailto:info@houseofbamboo.com.au)



Local or Interstate: 1800 240 996  
International: (+61)2 9666 5703

## ONLINE



[www.houseofbamboo.com.au](http://www.houseofbamboo.com.au)



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